	Application No.	**Applicant(s)**
Notice of Allowability	10/082,146	WASHIO, NOBUYUKI
	Examiner	**Art Unit**	
	Huyen X. Vo	2655	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *1/18/2006*.

2. ☒ The allowed claim(s) is/are *1 and 3-20 (now 1-19)*.

3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a) ☒ All   b) ☐ Some*   c) ☐ None   of the:

        1. ☒ Certified copies of the priority documents have been received.

        2. ☐ Certified copies of the priority documents have been received in Application No. _____ .

        3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

    * Certified copies not received: _____ .

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application. **THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.

    (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached

        1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.

    (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

    Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)

2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date _____

4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material

5. ☐ Notice of Informal Patent Application (PTO-152)

6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____ .

7. ☒ Examiner's Amendment/Comment

8. ☒ Examiner's Statement of Reasons for Allowance

9. ☐ Other _____ .

DETAILED ACTION

EXAMINER'S AMENDMENT

1.   An examiner's amendment to the record appears below. Should the changes

and/or additions be unacceptable to applicant, an amendment may be filed as provided

by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be

submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview

with applicant's representative, Mr. David Pitcher, on 3/14/2006. The application has

been amended as follows:

Claim 2 has been cancelled.

Claims 1, 18, and 20 have been amended as follows:

1.   A sound signal recognition system, comprising:

a sound signal input pad receiving a sound signal including one of either a voice

signal or a DTMF signal, or both;

a sound signal analyzing part calculating a feature value by conducting an

acoustic process for each segment of a sound signal;

a matching part including a voice signal model and a DTMF signal model,

matching the feature value, calculated by the sound signal analyzing part, with both the

voice signal model and the DTMF signal model, and producing a matching result;

a sound signal recognizing part, including a language model, recognizing the sound signal by using the matching result of the matching part and the language model, and selecting a better result by comparing the matching result using the voice signal model with the matching result using the DTMF signal model in the matching part for each segment of a sound signal,

wherein a sound signal recognition process is conducted with respect to the sound signal including either the voice signal or the DTMF signal, or both; and

an integrating part connecting sound signal recognition results selected by the sound recognizing part and integrating them as a total sound signal recognition result with respect to all the sections of the input sound signal.

18.   A sound signal recognition method, comprising:

inputting a sound signal including one of either a voice signal or a DTMF signal, or both;

calculating a feature value by conducting an acoustic process for each segment of the sound signal;

matching the feature value with both a voice signal model and a DTMF signal model, and producing a matching result;

recognizing the sound signal by using the matching result and a language model;

selecting a better result by comparing the matching result using the voice signal model with the matching result using the DTMF signal model for each segment of a sound signal;

conducting a sound signal recognition process with respect to the sound signal

including one of either the voice signal or the DTMF signal, or both; and

connecting sound signal recognition results selected said selecting a better

result, and integrating them as a total sound signal recognition result with respect to all

the sections of the input sound signal.

20.   A computer-readable recording medium storing a sound signal recognition

program for executing a sound signal recognition process with respect to an input sound

signal including either one selected from a voice signal section and a DTMF signal

section or both section, the program controlling a computer by:

inputting a sound signal including one of either a voice signal or a DTMF signal,

or both;

calculating a feature value by conducting an acoustic process for each segment

of the sound signal;

matching the calculated feature value with both a voice signal model and a

DTMF signal model;

selecting a better result by comparing the matching result using the voice signal

model with the matching result using the DTMF signal model for each segment of a

sound signal;

performing recognition of the sound signal by using a language model based on

a matching result, the language model including a word dictionary and grammar; and

connecting sound signal recognition results selected by said selecting a better

result, and integrating them as a total sound signal recognition result with respect to all

the sections of the input sound signal.

Allowable Subject Matter

2.   Claims 1 and 3-20 are allowed. After a full review of the argument presented

12/19/2005 and the interview 3/14/2006, the examiner determines that col. 1, 18, and

20 as amended by the examiner are allowable over the prior art of record. The

following is an examiner's statement of reasons for allowance: Epstein (US 6845356)

discloses a method for processing dual tone multi-frequency signals for use with a

natural language understanding system can include several steps. The step of

determining whether a audio input signal is a dual tone multi-frequency signal or a

human speech signal can be included. If the audio input signal is determined to be a

dual tone multi-frequency signal, the audio input signal can be converted to at least one

text equivalent. Also, the step of providing the at least one text equivalent to a natural

language understanding system can be included. The natural language understanding

system can determine a meaning from the text equivalent. Cohen (US 6014626) teach

a central monitoring system that include a DTMF modem decoder for receiving and

decoding DTMF tones generated by the patient using the touch-tone telephone and

transmitted to the central monitoring system. The DTMF tones represent the health

condition of the patient. A computer processor is coupled to the DTMF modem

decoder. A voice generator is also coupled to the computer processor and generates

voice output under the control of the computer processor. The voice output is transmitted to the touch-tone telephone. A database is coupled to the computer processor, storing a patient record reflecting the health condition of the patient and also storing the questions concerning the health condition of the patient. Both Epstein and Cohen fail to specifically disclose the steps of matching features extracted from input signal with **both** voice signal model and DTMF signal model, and selecting a better result by comparing the matching result using voice signal model with the matching result using DTMF signal model, and performing recognition using either language model belonging to DTMF signal or voice signal depending on the selecting a better result. Furthermore, it would have not been obvious to one of ordinary skill in the art at the time of invention to modify Epstein and/or Cohen in order to obtain the claimed invention. Therefore, claims 1 and 3-20 are allowed over prior art of record.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Huyen X. Vo whose telephone number is 571-272-7631. The examiner can normally be reached on M-F, 9-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Richemond Dorvil can be reached on 571-272-7602. The fax phone

number for the organization where this application or proceeding is assigned is 571-

273-8300.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free).

HXV   3/14/2006

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RICHEMOND DORVIL
SUPERVISORY PATENT EXAMINER